DOCUMENT RESUME

ED 322 165 TM 015 281

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TITLE Policy Changes and School Climate: An Analysis of the NAEP School Questionnaire (1987-1988).
INSTITUTION Educational Testing Service, Princeton, NJ. Policy Information Center.
PUB DATE Apr 90
NOTE 22p.; Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Disadvantaged Schools; Educational Change; *Educational Environment; Elementary Secondary Education; Ethnicity; Grade 4; Grade 8; Grade 12; Minority Group Children; *National Programs; Poverty; *Questionnaires; *School Policy; School Size; Student Attitudes; Teacher Attitudes; *Testing Programs; Test Interpretation; Test Results; Urban Schools
IDENTIFIERS *National Assessment of Educational Progress

ABSTRACT

This study is an analysis of the National Assessment of Educational Progress (NAEP) School Questionnaire administered across three grade levels (grades 4, 8, and 12) during the 1987-88 school year. The data obtained from the school questionnaire represent one level of NAEP's data collection activities, in addition to the teacher questionnaires and the various student assessments. The analysis was based on an investigation of the relationships between policy changes and school climate, measured both by a composite scaled score and by individual questionnaire items, and individual grouping variables defining school poverty, school size, community type, and ethnicity. The results show a fairly consistent pattern of relationships among policy changes and school climate both in terms of both how schools ranked on the various grouping dimensions and the results of analysis of variance and chi-square statistical tests. In terms of policy change, reported changes occurred more frequently in large, urban disadvantaged schools with predominantly non-white populations. Similarly, the reporting of school-related problems (such as absenteeism and tardiness) comprising the school climate score tended to be more prevalent in bigger city schools containing large minority and less advantaged populations. The results suggest that reform is occurring in those schools where it is needed most. Four data tables are included. (Author/TJH)

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Policy Changes and School Climate: An Analysis of the NAEP School Questionnaire (1987-1988)

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This study was completed under the auspices of the ETS Policy Information Center at the Educational Testing Service, Princeton, NJ. A full version of this report is currently in press in the ETS Research Report series. This paper was presented at the annual meeting of the American Educational Research Association, Boston, MA, April 19, 1990.

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Abstract

This study is an analysis of the NAEP School Questionnaire administered across three grade levels (4, 8 and 12) during the 1987-1988 school year. The data obtained from the school questionnaires represent one level of NAEP's data collection activities, in addition to the teacher questionnaires and the various student assessments. The analysis was based on an investigation of the relationships between policy changes and school climate, measured both by a composite scaled score and individual questionnaire items, and individual grouping variables defining school poverty, school size, community type and ethnicity. The results showed a fairly consistent pattern of relationships among policy changes and school climate both in terms of both how schools ranked on the various grouping dimensions and the results of Analysis of Variance and Chi Square statistical tests. In terms of policy change, reported changes tended to occur more frequently in large, urban disadvantaged schools with predominantly nonwhite populations. Similarly, the reporting of school-related problems such as absenteeism and tardiness comprising the school climate score tended to be more prevalent in bigger city schools containing large minority and less advantaged populations. These results suggest that reform is taking place in those schools where it is most needed.

Background

The National Assessment of Educational Progress (NAEP) is a federally mandated comprehensive national survey of educational achievement spanning three age cohorts of American students at the elementary, junior high and high school levels. ETS has been conducting this survey on a national basis since 1983 with support from the U.S. Department of Education and the National Center for Educational Statistics. In addition to this broad-based assessment of achievement, NAEP also collects data on a regular basis in the form of student, teacher and school questionnaires.

The purpose of collecting this additional data is to help NAEP bring its information gathering capabilities to bear on important policy questions. As outlined in the prospectus for a redesigned NAEP, A New Design for a New Era, (Messick, Beaton and Lord, 1983), the assessment is "practitioner-oriented" in the attempt to link relevant background and program variables to educational policy questions and practice. This particular study represents an attempt to capitalize on the policy dimensions of NAEP's data collection activities through an analysis of policy change and school climate variables at the school building level.

Introduction

This analysis takes place within the context of assessing the impact of school reform initiatives. During the past decade, there has been mounting awareness of and interest in the implementation of reform efforts on the part of the federal government down to the local school level. Government officials, teachers' groups and individual parents all have voiced their concerns over the need to develop policies and practices to counteract the problems facing our nations' schools today such as the dropout rate, drug abuse and declining educational performance, to name a few.

As educational reform has continued to capture the attention of policy makers, questions related to its implementation and impact have become more prominent. As Timar and Kirp (1988) note, "little is known about the effects of various reform strategies or the problems associated with their implementation" (p. 76). Specifically of interest is the need to assess how much reform is taking place. Are state-mandated reform efforts yielding benefits in terms of schools actually implementing specific practices? As a corollary, the question of where reform is taking place becomes extremely relevant. Is it taking place in those schools where it is most needed? Or, is reform mostly an affluent suburban phenomenon, practiced most by those able to afford it? Finally, the questions of what types of reforms are taking place and which

ones are occurring most frequently are of salience in assessing the extent of specific reform initiatives.

This analysis will attempt to provide answers to these questions by documenting both the nature and extent of policy changes and problems at the school building level. In addition, an analysis of policy change and school climate along various dimensions such as urbanicity, school size and ethnicity will hopefully yield insights into the questions of the focus and relevance of policy reform efforts.

Instruments

The data for this study were obtained from the 1987-88 School Characteristics and Policies Questionnaire, administered to participating schools in the national assessment. These questionnaires were generally filled out by the school principal or another person familiar with information concerning enrollment, facilities, curriculum and staff development. In the majority of questionnaires actually returned at the three grade levels, either the principal or vice-principal completed the items. Although these questionnaires are directed at the grade levels four, eight and twelve, the school-level nature of the questions precludes any direct conclusions to be made concerning a particular grade level. Moreover, one should keep in mind the question of reliability in interpreting the reported results. Different schools may respond to the same questionnaire item with an entirely different perspective, which could possibly affect the results. There is, however, no reason to assume such perceptions differ systematically with respect to the characteristics on which the variables are reported.

The first set of questions analyzed concerned policy changes brought about in the school since the start of the 1984-1985 school year. The person filling out the questionnaire was requested to indicate either changes made by school policy, changes made by state or district policy, or no changes effected. There were eight questions in total that were common

to all three questionnaires at the three grade levels, dealing with policy changes in the following areas:

1. Lengthening the school day
2. Lengthening the school year
3. Establishing a policy of increased homework
4. Implementing competency testing for promotion or graduation
5. Establishing new consistently enforced codes of student conduct
6. Establishing a stricter attendance policy
7. Establishing grade requirements for participation in athletics or extracurricular activities
8. Implementing any type of performance-based compensation system for teachers, such as merit pay, a career ladder, or mentor teacher program

The second set of questions used in the analysis concerned the area of school climate, whereby the respondent was asked to indicate the degree to which the following matters were a problem in the school:

1. Student tardiness
2. Student absenteeism
3. Student cutting of classes
4. Physical conflicts among students
5. Robbery or theft
6. Vandalism of school property
7. Student use of alcohol
8. Student use of illicit drugs
9. Student possession of weapons
10. Physical abuse of teachers
11. Verbal abuse of teachers

The enumerated conditions were rated either as serious, moderate, minor or non-problematic. The eleven school climate questions used in the analysis were identically worded on the school questionnaires for all three grade levels.

Data Analysis Procedures

The data for the present analysis were obtained from the public-use data tape provided by NAEP, allowing outside researchers to make use of the NAEP database. In addition to the raw data from the three school questionnaires, SPSS-X control files were also made available by NAEP support personnel at ETS, which facilitated the creation of system files containing variable definitions, variable and value labels, and missing value statements.

For the purposes of analyzing the questions of policy change and school climate, two composite scaled scores of these constructs were created, using the individual questionnaire items as input. For the questions related to policy change, each item was recoded to produce a dichotomous (0,1) scoreable item. This was achieved by collapsing the two "yes" categories (change by school policy and change by state or district policy) into one general category indicating change in policy as opposed to no change effected. Thus if a school indicated change either as a result of school policy or as mandated by the state or school district, its response was categorized as a "1", whereas schools responding with no change were coded as "0". The responses to the eight questions comprising the school policy change variable were then summed to yield an index of policy change in the school, ranging on a scale from 0 (no change) to 8 (maximum change).

A school climate composite was also created based on the responses to the eleven questions dealing with problems in the school. Each variable was measured on a four point scale, with values of 4 for serious, 3 for moderate, 2 for minor and 1 for not a problem. The composite was then derived by summing the scores for the eleven variables and dividing by

eleven, yielding an index of school climate for each school. This index was based on the same scale as the original variables, ranging from 1 (no problems) to 4 (serious problems).

Using the created composites of policy change and school climate, as well as the individual variables comprising the composites as the outcomes of interest, the purpose of the analysis was to investigate along which dimensions the various outcomes could be differentiated. A set of five grouping variables was selected as the basis of determining what patterns, if any, existed in the data. The five variables selected were as follows:

1. SCSTOC = Size and Type of Community

    1. Extreme Rural - Schools in rural areas with a high proportion of adults employed in farming.

    2. Low Metropolitan - Schools in urban areas with populations greater than 200,000 where a high proportion of adults were unemployed or on welfare.

    3. High Metropolitan - Schools in urban areas with populations greater than 200,000 where a high proportion of adults were in professional or managerial positions.

    4. Main Big City - Schools located in urban areas with populations greater than 200,000 but not falling into the categories of High or Low Metro.

    5. Urban Fringe - Schools located outside the city limits of urban areas with populations greater than 200,000, but not categorized as High or Low Metro.

    6. Medium City - Schools located in urban areas with populations between 25,000 and 200,000, but not classifiable as urban fringe areas.

7. Small Place - Schools located in areas with populations of less than 25,000, not located in the urban areas of big cities and not falling into the category of Extreme Rural.

This is a variable provided by Westat, Inc., the NAEP survey subcontractor, which was responsible for implementing the 1988 sampling design. Participating schools were placed into the above categories on the basis of type of community, size of population, and an occupational profile of residents provided by school principals.

2. SORSHPT = Orshansky Percentile

The Orshansky index is a variable based on information provided by Quality Education Data, Inc. (QED), which annually maintains and updates school level information. The index is an indicator of relative wealth specifying what percent of school-age children fall below the poverty line in a particular district. For the purposes of this analysis, the index was grouped as follows (in percents):

1. 0-2 Little or no poverty
2. 3-10 Low degree of poverty
3. 11-20 Moderate degree of poverty
4. > 20 High degree of poverty

3. SENROLL = Student Enrollment Code

1. 1-99 students
2. 100-299 "
3. 300-499 "
4. 500-749 "
5. > 749 "

The student enrollment code was also obtained from QED and was a measure of school size. The code initially consisted of seven categories, but was recoded with the effect of labeling schools with more than 749 students as "large" schools.

4. PPCWHT = Percent White

This variable was obtained from the Principal's Questionnaire (PQ) administered by Westat, Inc. prior to conducting the assessment. As a measure of percent of student ethnicity in each school, the variable was subsequently recoded and broken down as follows (in percents):

1. 0-49 Majority minority
2. 50-89 Integrated
3. > 89 Predominantly white

5. SPLUNCH = Percent in School Lunch Program

This variable was obtained from an ETS derived estimate indicating the percent of students in a given school receiving a subsidized lunch program. The estimate was derived by dividing the number of students receiving a subsidized lunch program (as indicated on the school questionnaire) by the number of students in the school (from the best estimate of student enrollment from either the PQ or QED). The variable was used to yield an additional indicator of school socioeconomic status and was broken down as follows for analysis (in percents):

1. 0-12 Low
2. 13-25 Low/Moderate
3. 26-50 Moderate/High
4. > 50 High

Weighting and Estimation Procedures

All reported results in this study are based on weighted responses to the various questionnaire items. NAEP uses a complex sampling scheme, rather than simple random sampling, in conducting the national assessment. Under this stratified multistage probability sampling design, certain subgroups (e.g., minorities) are sampled at higher rates in order to

ensure adequate precision in the estimation of subpopulation characteristics. Each school sampled, thus, is assigned a sampling weight to reflect the differential representation of various subgroups in the sample. The use of weighted responses in analyzing these data adjusts for the differential sampling rates to produce approximately unbiased sample estimates of the various subpopulation parameters. (For further information on the details of NAEP's sampling scheme, please refer to the National Assessment of Educational Progress 1988 Public-Use Data Tapes User Guide, Version 1.0.)

Although the use of weighted responses in analyzing the school questionnaire data results in sample estimates of population parameters such as means, proportions and regression coefficients which are approximately unbiased, standard statistical tests based on a naive use of these weighted data are not meaningful. This is in part because the sampling weights are designed to sum to the estimated total population size. Consequently, statistical tests whose degrees of freedom are based on the sum of the weights are almost guaranteed to be significant. To correct for this phenomenon, new scaled weights were created to approximate the sample n's actually used and make it possible to perform traditional statistical tests more appropriately. In addition, any statistical tests should also be based on sampling variability estimates appropriate to the sampling design one employs. NAEP uses a statistical procedure referred to as jackknifing to produce accurate standard errors, which corrects for the underestimation of the true sampling variability that would be produced by conventional variance estimates based on the assumption of a simple random sampling design. The analyses in this study do not employ the use of jackknifed standard errors, and thus are subject to misinterpretation if undue importance is attached to the statistical significance of the results.

For the purposes of this analysis a design effect expressing the average ratio of a hypothetical jackknifed variance estimate to the actual variance obtained (assuming simple random sampling) was conservatively defined at 1.5 (as recommended by Eugene Johnson

of ETS). This design effect was then used to define an effective sample size, expressed as actual sample size/design effect (1.5), which was then used for the analyses at the three grade levels. The standard errors reported in this study are the products of employing the design effect and the new scaled weights and thus approximately account for the sampling design. For further details on this procedure, please refer to the NAEP User Guide, Section 8.3, Procedures used by NAEP to estimate sampling variability.

For the above reasons, all statistical results reported and discussed should be interpreted with some degree of caution. Moreover, the performance of a large group of statistical tests on the same data can result in some statistically significant findings occurring merely by chance. Means and percentages (weighted to yield population estimates) of the various policy change and school climate variables will be presented in a descriptive manner with an eye to detecting consistent patterns in the data among the various groupings. Formal tests of statistical significance (One-way Analysis of Variance and Chi Square) have also been performed and reported for these data. One should be aware when reviewing these data that some results, while indicating statistical significance, may not be large enough to have any practical significance for policy considerations.

Results/Findings

A. Policy Changes by Grade Level

The policy change composite score, based on a scale from 0 (no change) to 8 (maximum change) increased by grade level from a low mean score of 2.92 for grade four to a score of 3.11 for grade eight up to 3.55 for grade twelve. These average composite scores indicate the greatest amount of policy change since the 1984-1985 school year occurring at the high school level.

When looked at by the five grouping variables, various patterns emerge which remain fairly consistent across grade levels (see Table 1). The size and type of community measure

(SCSTOC) showed the highest policy composite score for the category Low Metro for grades four (4.06) and twelve (4.18), while for grade eight Low Metro was ranked second with a mean of 4.05 next to Main Big City (4.30). The differences among the various levels of SCSTOC were statistically significant as indicated in the table at grades four and eight, but not, however at grade twelve. (Statistical results from the One-way Analysis of Variance performed on these data are based on an overall F test among the levels of the grouping variables). Since the results for Low Metro and Main Big City are insignificantly different from each other at each grade level, these results show schools located in disadvantaged urban areas and in main big cities registering the greatest amount of policy change for grades four and eight.

As far as the other grouping variables are concerned, there is a consistent pattern of results across the three grade levels. For the Orshansky percentile (SORSHPT), there exists a moderate to strong relationship between level of poverty and policy change, with the greatest amount of change occurring in the high poverty schools. Results at all three grade levels were statistically significant at the .05 level. Similarly for school enrollment (SENROLL), the largest schools exhibit the highest degree of policy change across grade level. The relationship between school size and policy change is fairly consistent for grades four and eight, but grade twelve shows less variability among the five enrollment categories. Accordingly, results at grades four and eight were statistically significant, but not at grade twelve.

For the variable measuring percent students receiving a subsidized lunch program (SPLUNCH), the amount of policy change is highest in the category where more than 50 percent of the students receive free lunch. Similarly, the amount of change is least in the category 0-12% for all three grades. A fairly consistent relationship exists between the two variables at all grade levels, although the amount of variation is less at grade twelve. Results were statistically significant only at grade eight, where the variability among the various levels of SPLUNCH is the greatest.

Table 1

School Policy Change Means*
By Grade Level Broken Down by Groupings

	Grade 4	Grade 8	Grade 12
SCSTOC			
Extreme Rural	2.90* (.38)**	3.08* (.36)	3.26 (.27)
Low Metro	**4.06** (.55)	4.05 (.42)	**4.18** (.62)
High Metro	3.37 (.49)	2.26 (.36)	2.73 (.43)
Main Big City	3.95 (.51)	**4.30** (.45)	3.60 (.53)
Urban Fringe	2.45 (.41)	3.25 (.29)	3.57 (.45)
Medium City	2.93 (.32)	2.86 (.47)	3.98 (.35)
Small Place	2.41 (.25)	2.76 (.18)	3.63 (.18)
SORSHPT			
0 - 2	2.53* (.25)	2.21* (.20)	3.07* (.21)
3 - 10	2.44 (.26)	3.01 (.21)	3.09 (.22)
11 - 20	3.39 (.32)	3.83 (.25)	4.18 (.24)
>20	**3.84** (.31)	**3.87** (.28)	**4.21** (.29)
SENROLL			
1 - 99	1.93* (.24)	2.11* (.44)	3.55 (.45)
100 - 299	3.16 (.24)	2.50 (.20)	3.54 (.21)
300 - 499	2.64 (.26)	2.92 (.22)	3.53 (.30)
500 - 749	3.44 (.37)	3.86 (.28)	3.03 (.26)
>749	**3.56** (.52)	**4.14** (.30)	**3.96** (.26)
SPLUNCH			
0 - 12	2.72 (.36)	3.00* (.23)	3.53 (.22)
13 - 25	3.25 (.38)	3.08 (.22)	3.60 (.27)
26 - 50	2.98 (.30)	3.45 (.30)	3.69 (.23)
>50	**3.60** (.37)	**4.16** (.41)	**3.76** (.81)
PPCWHT			
0 - 49	**3.80*** (.37)	**4.20*** (.28)	**4.11** (.54)
50 - 89	3.58 (.31)	2.67 (.27)	3.78 (.24)
>89	2.51 (.19)	2.70 (.15)	3.35 (.15)
TOTALS:	2.92 (.15)	3.11 (.13)	3.55 (.12)

* Differences among levels of grouping variable significant at 0.05 level
** Standard errors in parentheses
*** Means are weighted to yield population estimates
\+ Bold indicates largest mean within grouping

Finally, the percent white grouping variable (PPCWHT) also shows a clear relationship between the percent of white students in a school and the amount of policy change. The highest degree of change is found in those schools with the lowest percentage of white students (majority minority), while the predominantly white schools show considerably less policy change across the three grade levels. Results for this grouping variable were statistically significant at grades four and eight, but not at grade twelve.

In summary, the results for the policy change composite score broken down on the five grouping variables suggest that the highest degree of reported change might occur in large, urban disadvantaged schools with majority minority populations at all three grade levels. At grade eight, differences among the level of all five grouping variables were statistically significant at 0.05 according to the One-way Analysis of Variance test. (See Figure 1 for a graphical display). Conversely, reported change is apt to be less at small, predominantly white, less disadvantaged schools.*

B. School Climate by Grade Level

School climate, as previously mentioned, represents an average composite of eleven school-level variables dealing with matters ranging from absenteeism to physical abuse of teachers. Based on a scale from 1 (no problem) to 4 (serious), the average score ranged from a low of 1.27 at grade four, increasing to 1.44 at grade eight and to 1.69 at grade twelve, repeating a similar pattern to the policy change composite (see Table 2).

When broken down by the individual grouping variables, similar patterns to policy change also emerge.** In terms of size and type of community, the highest average degree of reported problems occurs in the category Low Metro across all grade levels, with the category Main Big

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*Although a multivariate analysis such as discriminant function analysis would be needed to confirm this.

**Similarly, grade eight showed statistically significant differences among the levels of the five grouping variables at the 0.05 level.

City ranked second for grades four and eight, and third for grade twelve. Results for SCSTOC were statistically significant at .05 for grades four and eight, but not at grade twelve.

In terms of the Orshansky percentile, the data show that as levels of poverty increase, a corresponding increase in the school climate score occurs as well. Although the relationship is not entirely linear, especially at grades eight and twelve, the higher school climate scores (more serious problems) are associated with higher levels of school poverty, while lower scores occur with little or no poverty. Results at all three grade levels were found to be statistically significant at the .05 level.

The school size variable, SENROLL, shows a strong correspondence with school climate, especially at grades eight and twelve where the results were statistically significant. At all grade levels, the highest school climate scores are associated with the largest schools, while the lowest scores generally occur with the smallest schools (with the exception of grade four where the lowest two categories of enrollment are slightly reversed by .01).

The grouping variable measuring percent students receiving a subsidized lunch program shows a moderate relationship with school climate at grades four and eight, and surprisingly, a slightly negative relationship at grade twelve. At grades four and eight, the highest school climate scores occur in schools where more than 50% of the students receive free lunch, while at grade twelve the situation is reversed. The lowest category of school lunch comprising 0 to 12% of the students has the highest level of school problems, although only .07 of a difference score separates the highest and lowest categories. Results at all three grade levels were found to be statistically significant.

Finally, the percent white grouping variable displays a moderate to strong relationship with school climate. The highest scores occur in schools with majority minority populations at all three grade levels while lower scores are associated with schools with predominantly white populations. Although the relationship is slightly reversed at the upper two categories for grade

Table 2

School Climate Means***
By Grade Level Broken Down by Groupings

	Grade 4		Grade 8		Grade 12	
SCSTOC						
Extreme Rural	1.30*	(.05)**	1.38*	(.06)	1.57	(.06)
Low Metro	**1.49**	(.06)	**1.77**	(.09)	**1.90**	(.19)
High Metro	1.20	(.04)	1.27	(.05)	1.71	(.08)
Main Big City	1.34	(.06)	1.54	(.08)	1.76	(.15)
Urban Fringe	1.24	(.04)	1.45	(.08)	1.87	(.09)
Medium City	1.21	(.04)	1.39	(.07)	1.75	(.12)
Small Place	1.27	(.03)	1.41	(.04)	1.66	(.04)
SORSHPT						
0 - 2	1.21*	(.02)	1.24*	(.03)	1.49*	(.05)
3 - 10	1.20	(.03)	1.47	(.05)	1.79	(.06)
11 - 20	1.34	(.03)	**1.60**	(.05)	**1.84**	(.06)
>20	**1.44**	(.04)	1.56	(.07)	1.71	(.06)
SENROLL						
1 - 99	1.24	(.05)	1.19*	(.05)	1.39*	(.10)
100 - 299	1.23	(.03)	1.35	(.04)	1.67	(.06)
300 - 499	1.28	(.03)	1.38	(.04)	1.65	(.06)
500 - 749	1.32	(.04)	1.60	(.05)	1.66	(.04)
>749	**1.36**	(.06)	**1.67**	(.07)	**1.88**	(.06)
SPLUNCH						
0 - 12	1.17*	(.03)	1.45*	(.04)	**1.81***	(.04)
13 - 25	1.29	(.04)	1.40	(.05)	1.77	(.05)
26 - 50	1.30	(.04)	1.59	(.06)	1.57	(.07)
>50	**1.42**	(.04)	**1.62**	(.08)	1.74	(.23)
PPCWHT						
0 - 49	1.40*	(.04)	**1.63***	(.07)	**1.93***	(.14)
50 - 89	1.29	(.03)	1.45	(.06)	1.61	(.07)
>89	1.22	(.02)	1.36	(.03)	1.71	(.03)
TOTALS:	1.27	(.02)	1.44	(.02)	1.69	(.03)

* Differences among levels of grouping variable significant at 0.05 level
** Standard errors in parentheses
*** Means are weighted to yield population estimates
\+ Bold indicates largest mean within grouping

twelve, the relationship is fairly linear at grades four and eight. Results at all grade levels for PPCWHT were found to be statistically significant at p=.05.

C. Policy Change: Individual Factors

In attempting to account for which of the individual policy change variables account for the variation in the composite scale score, a number of patterns clearly emerge (see Table 3). For grades four and eight, the establishment of new consistently enforced codes of student conduct had the highest ranking (63.1 and 67.7% respectively) of those schools reporting changes. For grade twelve, the establishment of a stricter attendance policy had the highest ranking (72.6%), while conduct came in a close second, tied with establishing grade requirements for athletics or extra-curricular activities. The overall patterns as indicated by the ranking of the individual variables are rather similar by grade. As indicated in the table, the three above mentioned variables of conduct, attendance and athletics exhibit the highest degree of change, while lengthening the school year and implementing a performance-based compensation system for teachers assume less importance at all grade levels.

Table 3

Policy Change Percentages* By Grade Level (With Ranks)

Common Policy Changes	Grade 4	Rank	Grade 8	Rank	Grade 12	Rank
School Day	34.1(3.3)**	5	30.2(2.9)	6	40.0(3.5)	4
School Year	18.3(2.7)	8	16.0(2.3)	8	16.7(2.7)	8
Homework	32.1(3.2)	6	30.3(2.9)	5	26.5(3.2)	6
Competency	36.7(3.4)	4	36.0(3.1)	4	37.7(3.5)	5
Conduct	**63.1**(3.3)	1	**67.7**(3.0)	1	69.5(3.3)	2.5
Attendance	46.1(3.5)	2	51.3(3.2)	3	**72.6**(3.2)	1
Athletics	37.3(3.4)	3	60.4(3.1)	2	69.5(3.3)	2.5
Compensation	26.5(3.1)	7	21.7(2.6)	7	23.4(3.0)	7

* Percentages are weighted to yield population estimates.
** Standard errors are in parentheses.
\+ Bold figures indicate highest percentage within grade.

D. School Climate: Individual Factors

Analyzing school climate by the individual variables comprising the composite scale score leads to several revealing insights as shown by Table 4. First of all, problems tend to get more serious as one moves from grades four through grade eight up to grade twelve for all variables with the exception of physical conflicts among students (slight decrease at grade twelve). Tardiness and absenteeism rank as the two most serious problems across all grade levels. Student use of alcohol is also a more serious problem at grade twelve. (Interpretations of the relative severity of these problems should take into account the fact that the scale runs from 1 to 4 with a score of 4 characterizing a serious problem).

Table 4

School Climate Means* by Grade Level (With Ranks)

School Climate Indicators	Grade 4	Rank	Grade 8	Rank	Grade 12	Rank
Tardiness	**1.72**(.05)**	1	**1.91**(.05)	1	**2.31**(.05)	1
Absenteeism	1.65(.05)	2	1.90(.05)	2	2.28(.06)	2
Cutting Classes	1.04(.01)	9.5	1.25(.03)	9	1.67(.05)	5
Physical Conflicts	1.60(.04)	3	1.65(.04)	3	1.53(.05)	8
Robbery/Theft	1.28(.03)	5	1.44(.04)	5	1.63(.05)	6
Vandalism	1.33(.04)	4	1.47(.04)	4	1.60(.04)	7
Alcohol Use	1.09(.03)	7	1.40(.05)	7	2.16(.06)	3
Drug Use	1.07(.02)	8	1.27(.03)	8	1.82(.05)	4
Weapons	1.04(.01)	9.5	1.11(.02)	10	1.12(.03)	10
Physical Abuse	1.02(.01)	11	1.03(.01)	11	1.05(.02)	11
Verbal Abuse	1.21(.03)	6	1.42(.04)	6	1.46(.04)	9

* Means are weighted to yield population estimates
** Standard errors are in parentheses
\+ Bold indicates highest means within grade

The ranking of the individual variable means is almost identical for grades four and eight, while grade twelve shows a somewhat different pattern in that use of alcohol and drugs as well as cutting classes are more pronounced at that grade level.

Conclusions/Summary

The results reported in this study point to a number of summary conclusions. First of all, policy reforms seem to be linked to a number of societal and school-level factors. Based on the available data from the three school questionnaires, policy change appears to occur more often in large urban schools with large numbers of disadvantaged minority students. Correspondingly, school climate as measured by a number of school-related problems exhibits similar trends as indicated by the data. Matters of concern to school personnel, such as absenteeism and tardiness, tend to be more prevalent along the same dimensions as policy reform; that is, school-related problems are associated more with bigger city schools containing large minority and less advantaged populations. For further details on multiple comparison test procedures concerning specific levels of the grouping variables on the policy change and school climate composite scores, please refer to the appendix.

No attempt is made here, however, to draw any strong causal inferences from these data. Along with the problems inherent in using self-reported survey data, these data remain nonexperimental and there is thus little basis for validating any causal linkage between the variables of policy change and school climate. The data do support the hypothesis, nonetheless, that policy change and school-related problems tend to co-occur in the same settings and suggest therefore that schools more affected by problems are making attempts to redress them through policy efforts. The opposing, seemingly implausible conclusion one can draw from these results is that policy change efforts are contributing to an increase in school-related problems!

Additional effort needs to be devoted to studying possible interactions between the constructs of policy change and school climate. For example, is there any relationship between establishing a strict attendance policy in a school and the problem of absenteeism? Or, do schools which have reported establishing new consistently enforced codes of student conduct also tend to report fewer instances of physical conflicts among students or use of alcohol or

drugs? This study provides a basis for developing further initiatives in investigating the usefulness of school questionnaire data to inform policy reform efforts in our nation's schools.

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